Collection and Presentation of Crash Data

Transportation Planning Branch		Approved: August 30, 2007 **Revised: November 20, 2012** Version 4

[Contents]

Purpose

The purpose of this procedure is to provide a consistent methodology for gathering information about the status of vehicle crashes in the study area, and presenting that information for CTP studies.

Background

Traffic crash data can reveal whether transportation improvements may increase safety. Some causes of crashes cannot be impacted by transportation improvements, such as those that result from driver or vehicle performance, or the weather. Types of crashes that may be reduced by transportation improvements include those due to traffic conditions or roadway characteristics. For example, traffic crashes may be an indicator of congestion problems that can be reduced by capacity adding projects or congestion management strategies. Crashes may also be a result of the physical characteristics of the roadway like substandard design, inadequate signing, ineffective parking, or poor sight distance. Some of these crashes may be prevented with physical design or traffic control changes such as the installation of stop signs or traffic signals. There type of crash data utilized in this procedure is high frequency crash locations. The Traffic Safety Unit of NCDOT's Transportation Mobility and Safety Division identifies high frequency crashes at intersections and along roadway sections. High frequency crash location data is available on the NCDOT's Traffic Safety Unit website.

Responsibility

It is the responsibility of the Project Engineer to obtain the crash data and put the appropriate data into a standardized map in the Comprehensive Transportation Plan (CTP) Report.

Policy, Regulatory, and Legal Requirements

No specific policy exists for the collection of crash data for CTP studies.

Scheduling and Time Constraints

The collection of crash data should be completed before the deficiency analysis is conducted on the highway system as a whole, as part of the CTP study.

Procedures

The project engineer will follow the steps below to properly collect and map highway crash data for the study planning area.

Step	Action
1	The Project Engineer uses the information from the high frequency crash data to identify deficiencies and to develop CTP project proposals. The high frequency crash data is documented in the appropriate section of the CTP Report (refer to 'CTP Document – Prepare and Distribute' and 'Development of Problem Statement' procedures).
2	From the Traffic Safety Unit webpage select Crash Data and Maps. In the *Crash Maps, Shape Files and Metadata* Section, select + *Crash Type: 01 Metadata, Maps, Shapefile,* and then select +*Crash Description*. Download and save both *Intersections and Sections High Frequency Crash Locations Shapefiles* to the CTP project folder on your hard drive. You should also download and save the pdf version of High Frequency Crash Location (HFCL) map for your county to use as a reference material. This map provides information about the time period for the collected crash data and an explanation of the criteria used. Download the pdf version from the same webpage above: in the *Crash Maps, Shape Files and Metadata* Section select +*Crash Type: High Frequency, then* select +*Crash Description: By Location*. Select the map for your county and save it to CTP project folder on your hard drive.
3	The downloaded shapefiles have statewide coverage and should be clipped to your planning area.
4	Open the Crash_Map_Template from the *S:\Shared\TPB Reference\Comprehensive Transportation Plan\ArcMap 10_CTP Map Templates & Style File\Crash_Map_Template*, Add clipped layers for Crash Intersections and Crash Sections to create the **High Frequency Crash Locations Map** for your CTP study; add appropriate layers from your base map according to the HFCL map legend. Edit map legend to reflect your study area name, dates and provide time period for the crash data according to the pdf version of the map downloaded on step 2.
5	Select the *Crash Sections layer*, open Properties > Symbology > Categories > Unique Values and select field Category. Add all values and apply symbology using the most current CTP Style File *S:\Shared\TPB Reference\Comprehensive Transportation Plan\ArcMap 10_CTP Map Templates & Style File\ArcMap10_CTP_Style_(September_2012).zip* (*For the best representation of Crash Sections on the map use line width =1.5, for Study Roads use line width =2.00 and 40% Transparency (Study Roads >Properties >Display*). See example of the map legend below.

6	Select the *Crash Intersections* layer, open Properties > Symbology > Categories > Unique Values and select field Category. Add all values and apply symbology using the most current CTP Style File *S:\Shared\TPB Reference\Comprehensive Transportation Plan\ArcMap 10_CTP Map Templates & Style File\ArcMap10_CTP_Style_(September_2012).zip* See example of the map legend below.

HFCL Map Color and Shape Standards

Colors In Order:

- Electron Gold
- Dark Ameythist
- Poinsetta Red
- Peacock Green
- Ultra Blue
- Light Apple

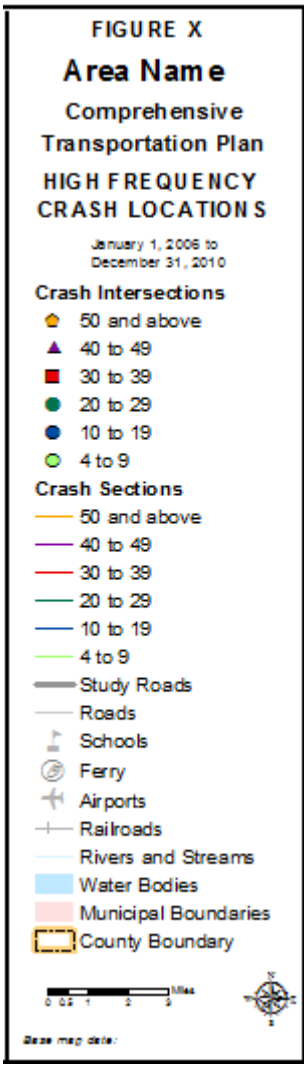
Intersections - Shape Size = 12

- 50 and above
- 40 to 49
- 30 to 39
- 20 to 29
- 10 to 19
- 4 to 9

Sections - Line Width = 1.5

- 50 and above
- 40 to 49
- 30 to 39
- 20 to 29
- 10 to 19
- 4 to 9

Sample Legend for High Frequency Crash Locations



Warnings and Precautions

None

Resources and Tools

- Develop CTP Maps procedure
- Adobe Acrobat Reader
- ArcMap (ESRI software)
- ArcCatalog (ESRI software)
- NCDOT Traffic Safety Unit website

Contacts

- For suggestions to change this procedure contact: Elena Talanker (919) 707-0911
- For questions about performing this procedure contact: Elena Talanker (919) 707-0911

Glossary

For a complete listing of terms, definitions and acronyms, go to the Master Glossary.

User Access

Intended for NCDOT Internal Use Only, but not exempt from the public records access requirements.

Flowchart

None

Record of Revision

Version	Section Affected	Description	Effective Date
2	Procedures	The threshold for the minimum number of crashes was changed from 5 to 10. Some additional links were activated.	07/24/09
	Background, Procedures	Added 'Requesting a Crash Analysis from NCDOT's Safety Planning Group' section to the Procedures and reference to it in the Background and other edits. Added map developing guidance in the map preparation procedure.	07/21/2010
3.1	Links	Updated broken links to Crash Data from NCDOT's Safety Planning Group	07/21/2011

4	Procedures	Whole procedure was changed to utilize HFCL Intersections and Sections data available from the Transportation Mobility and Safety Division website.	11/20/2012